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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/885,576 | 06/20/2001 | Charles P. Lin | 910000-2017 | 3973 |

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EXAMINER

FINEMAN, LEE A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2872

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/885,576

Applicant(s)

LIN ET AL. 

Examiner

Lee Fineman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16, 19-20, 23-25 is/are allowed.
- 6) ☒ Claim(s) 1-15, 17, 18, 21, 22 and 26-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to an amendment filed 25 June 2003 in paper number 16 in which claims 26-44 were added. Claims 1-44 are pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-6, 8-9, 13, 15, 17-18, 21-22, 26-28, 30-31, 33-34, 38 and 40-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hang et al., U.S. Patent No. 6,121,603 in view of Kittrell et al. U.S. Patent No. 6,370,422 B1.

Regarding claims 1-3 and 26-28, Hang et al. disclose a confocal microscope (fig. 6A) with a flexible incoherent fiber optical bundle in at least one of the sections (79') and wherein the imaging section comprises a line scanning means (fig. 3B) that scans across a proximal end of the element (Ob₂). Hang et al. disclose the claimed invention but is silent as to whether the probe is a remote probe specifically for imaging of tissues at locations within the body/subject in place of an endoscope. Kittrell et al. teach a microscope (figs. 21 or 22) where the fiber bundle probe (fig. 1) is a remote probe for imaging of tissues at locations within the body/subject in place of an endoscope (column 1, lines 40-46 and column 7, lines 56-57). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention to make the

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probe of Hang et al. a remote probe for imaging of tissues at locations within the body/subject in place of an endoscope as suggested by Kittrell et al. to be able to view various interior parts of the human body.

Regarding claims 5-6, 8-10, 13, 30-31, 33-35 and 38, Hang et al. further disclose an objective lens (80) at the distal end of the element (Ob_1) for focusing a laser beam (30) in the region of interest and where the incoherent fiber bundle (79') between a light manipulation section (32, 75, 73, and 77) and the objective lens (80) scrambles light in that spatial individual fibers at one of the ends of the bundle are randomly scrambled or scrambled in a prescribed pattern relative to that at the other end (column 11, lines 1-12).

Regarding claims 15, 17-18, 21 and 40-43, Hang et al. disclose a method for decoding a scrambled image formed by an incoherent fiber bundle in a microscope (figs. 6A, 6B, column 10, lines 10-26) comprising the steps of raster scanning, which is a spatially coded pattern, a focused light spot onto one end of the fiber bundle and sequentially reading out a corresponding fiber at the other end of the bundle and constructing a map of the first and second ends, whereby an image formed by light remitted into the second end can be unscrambled by the mapped relationship of the first and second ends (column 11, lines 1-12). Hang et al. is silent as to whether the bundle is insertable into a body or subject. Kittrell et al. teach a microscope (figs. 21 or 22) wherein a fiber bundle (fig. 1) is insertable into a body or subject (column 1, lines 40-46 and column 7, lines 56-57). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hang et al. so that the fiber bundle may be inserted into a body or subject, as suggested by Kittrell et al., to be able to view various interior parts of the human body.

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Regarding claims 22 and 44, Hang et al. further disclose a color-coded line pattern when producing the image on a display device (column 11, lines 13-27).

3. Claims 14 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hang et al., in view of Kittrell et al., as applied to claims 6 and 31 above, and further in view of Richards-Kortum et al., U.S. Patent No. 6,370,422 B1.

Regarding claim 14, Hang et al. in view of Kittrell et al., as applied to claims 6 and 31 above, disclose the claimed invention except for each end of the fiber bundle being index matched via a window material. Richards-Kortum et al. teach a confocal microscope with each end of the fiber bundle being index matched via a window material (column 5, lines 35-53). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to index match the ends of the fiber bundle of Hang et al. in view of Kittrell et al. via window material to reduce reflection.

4. Claims 4, 7, 11-12, 29, 32 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hang et al. in view of Kittrell et al., as applied to claims 1, 6, 26 and 31 above, and further in view of Harris, U.S. Patent No. 5,323,009.

Hang et al. in view of Kittrell et al., as applied to claims 1, 6, 26 and 31 above, disclose the claimed invention except for the microscope further comprising a slit aperture disposed in the path of light by scanned across the proximal end of the fiber. Harris teaches a confocal microscope (fig. 3) with a slit aperture (86, 87) disposed in the path of light scanned across the proximal end of the fiber. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a slit aperture with the confocal microscope of

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Hang et al. in view of Kittrell et al. to block returning light from the out-of-focus parts of the specimen (column 5, lines 17-21, Harris).

Allowable Subject Matter

5. Claims 16, 19, 20, and 23-25 are allowed.
6. Claims 16, 19, 20, and 23-25 are allowable over the prior art for at least the reason that the prior art fails to teach and/or suggest “the step of decoding the scrambled image formed by said first fiber bundle with a second incoherent fiber bundle” as set forth in the claimed combination.

Hang et al., U.S. Patent No. 6,121,603, discloses a method for decoding a scrambled image formed by an incoherent fiber bundle comprising the steps of raster scanning, which is a spatially coded pattern, a focused light spot onto one end of the fiber bundle and sequentially reading out a corresponding fiber at the other end of the bundle (column 11, lines 1-12) as claimed but does not teach decoding the image with a second incoherent fiber bundle.

Response to Arguments

7. Applicant's arguments with respect to claims 1-44 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (703) 305-5414. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (703) 305-0024. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.



LAF
August 22, 2003


MARK A. ROBINSON
PRIMARY EXAMINER